Audit Report

YEAR 2000 COMPLIANCE OF THE
THEATER DEPLOYABLE COMMUNICATIONS SYSTEM

Report No. 99-207 July 7, 1999

Office of the Inspector General
Department of Defense

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Acronyms

ESC	Electronic Systems Center
ICAP	Integrated Communications Access Packages
LMST	Lightweight Multiband Satellite Terminal
PACOM	U.S. Pacific Command
TDC	Theater Deployable Communications
Y2K	Year 2000

INSPECTOR GENERAL
DEPARTMENT OF DEFENSE
400 ARMY NAVY DRIVE
ARLINGTON, VIRGINIA 22202-2884

July 7, 1999

MEMORANDUM FOR ASSISTANT SECRETARY OF DEFENSE (COMMAND, CONTROL, COMMUNICATIONS, AND INTELLIGENCE)
COMMANDER IN CHIEF, U.S. PACIFIC COMMAND
ASSISTANT SECRETARY OF THE AIR FORCE (FINANCIAL MANAGEMENT AND COMPTROLLER)

SUBJECT: Audit Report on Year 2000 Compliance of the Theater Deployable Communications System (Report No. 99-207)

We are providing this report for your information and use. This is one in a series of reports being issued by the Inspector General, DoD, in accordance with an informal partnership with the Chief Information Officer, DoD, to monitor efforts to address the year 2000 computing challenge. Because this report contains no recommendations, no written comments were required, and none were received; therefore, we are publishing this report in final form.

We appreciate the courtesies extended to the audit staff. For additional information on this report, please contact Mr. Wayne K. Million, at (703) 604-9312 (DSN 664-9312) (wmillion@dodig.osd.mil) or Ms. Judith I. Padgett, at (703) 604-9217 (DSN 664-9217) (jpadgett@dodig.osd.mil). See Appendix B for the report distribution. The audit team members are listed inside the back cover.

Robert J. Lieberman
Assistant Inspector General
for Auditing

Office of the Inspector General, DoD

Report No. 99-207
Project No. 9CC-0086.08

July 7, 1999

Year 2000 Compliance of the Theater Deployable Communications System

Executive Summary

Introduction. This is one in a series of reports being issued by the Inspector General, DoD, in accordance with an informal partnership with the Chief Information Officer, DoD, to monitor efforts to address the year 2000 computing challenge. For a listing of audit projects addressing the issue, see the year 2000 webpage on the IGnet at www.ignet.gov.

Objectives. The overall audit objective was to assess the status of selected Military Department and Defense agency mission-critical systems, identified by U.S. Pacific Command and U.S. Forces Korea as being of particular importance to them, in attaining compliance with year 2000 conversion requirements. Specifically, we reviewed the progress of each system towards year 2000 compliance, testing and integration of modifications, and contingency plans. For this report, we reviewed the Theater Deployable Communications system, managed by the Electronic Systems Center for the Air Force Materiel Command.

Results. The Electronic Systems Center Program, Director for Defense Information Infrastructure, certified the Theater Deployable Communications system as year 2000 compliant on December 31, 1998. The system program manager followed the Electronic Systems Center certification process documented in the "Year 2000 (Y2K) Corrective Action Plan." The Y2K plan requires comprehensive verification of system testing before certification. The program office's adherence to the certification process minimized the risk of failure associated with year 2000 processing for the communications system.

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Background

DoD Management Plan. As the DoD, Chief Information Officer, the Assistant Secretary of Defense (Command, Control, Communications, and Intelligence) issued the "DoD Year 2000 Management Plan" (DoD Management Plan) in April 1997, a revised plan in June 1998, and the most current version in December 1998. The DoD Management Plan provides the overall DoD strategy and guidance for inventorying, prioritizing, fixing or retiring systems, system contingency planning, and for monitoring progress. The DoD, Chief Information Officer has overall responsibility for overseeing the DoD solution to the year 2000 (Y2K) problem. The DoD Components implement the Y2K management process that is described in the DoD Management Plan. The DoD goal has been to complete implementation of Y2K compliant mission-critical systems by December 31, 1998, and other systems by March 31, 1999.

Secretary of Defense Guidance. On August 7, 1998, the Secretary of Defense issued a memorandum, "Year 2000 Compliance," which defined the Y2K computer problem as a critical national defense issue. The Secretary's memorandum also requires each of the Unified Commanders in Chief to report the status of Y2K implementation within their commands and the commands of subordinate Components after October 1998.

U.S. Pacific Command. The U.S. Pacific Command (PACOM) is the largest of the nine unified commands in the Department of Defense. The PACOM mission is to promote peace, deter aggression, respond to crises, and, if necessary, fight and win to advance security and stability throughout the Asian-Pacific region.

The Component commands from each Service (U.S. Army Pacific, U.S. Pacific Fleet, U.S. Pacific Air Force, and Marine Forces Pacific) support PACOM, which is headquartered at Camp Smith, Hawaii. In addition, PACOM exercises combatant controls over four subunified commands within the Pacific region. The subunified commands are the U.S. Forces Japan, U.S. Forces Korea, Alaskan Command, and Special Operations Command Pacific.

Electronic Systems Center. The Electronic Systems Center (ESC), located at Hanscom Air Force Base, Massachusetts, is part of the Air Force Materiel Command. ESC manages the development and acquisition of electronic command and control systems that gather and analyze information on potentially hostile forces, enabling commanders to make quick decisions and rapidly pass them on to their forces. The electronic command and control systems help to direct America's air-power arsenal to the right target at the right time.

With an annual budget of approximately $4 billion, ESC is the Air Force leader in command and control programs. It manages more than 150 programs, ranging from secure communication systems to mission planning systems.

Theater Deployable Communications. Theater Deployable Communications (TDC) is a mission-essential communications system that the Air Force may deploy to any location in the world to support all types of operations. The TDC design is very flexible and operators configure the equipment as necessary to

support numerous operational scenarios. The two major elements of the TDC system are the Lightweight Multiband Satellite Terminal (LMST) and the Integrated Communications Access Packages (ICAP). The LMST provides easily deployable long-haul communications capabilities while ICAP provides switched voice, data, video, and message traffic user services.

Objectives

The overall objective was to assess the status of selected Military Department and Defense agency mission-critical systems, identified by U.S. Pacific Command and U.S. Forces Korea as being of particular importance to them, in attaining compliance with Y2K conversion requirements. Specifically, we reviewed the progress of each system towards Y2K compliance, testing and integration of modifications, and contingency plans. For this report, we reviewed the Theater Deployable Communications system, managed by the Electronic Systems Center for the Air Force Materiel Command. See Appendix A for a discussion of the audit process and a summary of prior coverage.

Year 2000 Compliance of the Theater Deployable Communications System

The ESC, Program Director for Defense Information Infrastructure, certified the TDC system as Y2K compliant on December 31, 1998. The TDC program office supported the certification of Y2K compliance in accordance with the ESC certification process documented in the "Year 2000 (Y2K) Corrective Action Plan." The corrective action plan implemented DoD Y2K guidance and detailed the program office pursuit of Y2K compliance for TDC. The certification of TDC and deployment of contingency plans minimized the risk of TDC system failure associated with Y2K processing.

Determining Y2K Compliance and Corrective Actions

Program Action Plan. The program director certified the TDC system as Y2K compliant on December 31, 1998. To pursue the certification of Y2K compliance for TDC, the program office followed DoD and Air Force Y2K guidance in determining compliance and developing corrective actions. The ESC, Communications and Airspace Management Systems Program Office, which oversaw TDC and other programs, developed the plan, "Year 2000 (Y2K) Corrective Action Plan," February 14, 1997. The plan described the uniform step-by-step approach that the TDC and ESC program managers used to: identify impacted programs, guide development of specific corrective actions, obtain approval of proposed fixes, and test and certify that all ESC programs were Y2K compliant.

Independent Y2K Test. In 1998, the Air Combat Command and the Air Mobility Command, with ESC and contractor support, independently tested TDC for Y2K compliance. The tests focused on commercial off-the-shelf products, which the participating test organizations had not developed, that comprised TDC components. The Air Combat Command and Air Mobility Command tests provided the basis for the TDC Y2K operational evaluation. Those independent tests validated earlier LMST and ICAP contractor-provided test results.

LMST. LMST is the long-haul telecommunications component of the TDC system. Harris Corporation, the prime contractor, renovated LMST to ensure Y2K compliance. Harris evaluated the impact of Y2K on the LMST system software and performed an in-plant test to verify compliance. Harris provided the results of its Y2K evaluation and testing in a July 1, 1997, memorandum to the contracting officer. Harris certified that the hardware and software in the LMST would properly use Y2K-related dates.

ICAP. ICAP is a scaleable network that provides communication services to multiple users deployed at various locations within an approximately 5 kilometer square metropolitan area. The ICAP hardware and software

consists of selections from readily available commercial off-the-shelf equipment, which is widely used in commercial communications. Although all equipment proposed for TDC ICAP is in use worldwide by major telecommunications carriers and businesses, as well as other DoD and government users, potential Y2K failures could still exist. To prevent the Y2K failures, the TDC program office:

- requested the contractor, Motorola Corporation, guarantee that all equipment used in the ICAP program would properly use dates related to Y2K;
- had Motorola ask its ICAP suppliers to confirm their compliance to the Y2K requirements specified in all Motorola purchase orders (they received no negative responses); and
- had ESC independently test ICAP for accurate Y2K processing.

Certification Process

The program office used the Air Force Y2K certification process to develop and complete its certification process for TDC. The intent of the Air Force Y2K certification process was to:

- guide the certifier through the DoD five phase process (awareness, assessment, renovation, validation, and implementation);
- provide a consolidated document which records activities demonstrating due diligence;
- provide a system with a continuity document for its certification process; and
- establish a standard baseline process for Air Force certification.

Quality Assurance. A certifier is a quality assurance individual appointed by the commander or designated appointing authority with appropriate organizational and technical knowledge, experience, authority, and commitment. The Air Force Y2K Program Management Office trained certifiers. The ESC, Global Grid Product Area Director appointed the Y2K certifier for the Global Grid programs, including TDC. The TDC certifier, who received training in 1997 and 1998, began certifying systems in February 1997.

Certification Tracking Document. The TDC program office used the Air Force Y2K certification tracking document to record details about the steps and procedures that the program office took during the certification process. The TDC certifier reviewed each compliance checklist item and signed his name as he worked through each process phase.

System Contingency Plan

The TDC program office developed a system contingency plan (the Plan) for LMST and ICAP on December 22, 1998. The Plan for LMST and ICAP addressed roles and responsibilities in general, but did not provide detailed Y2K emergency responses or help desk procedures. For example, the Plan stated that operators should isolate, repair, and replace components if Y2K failures are experienced. However, the Plan did not provide users with specific procedures to restore operations. Further, the Plan stated that the field commander should make the final decision regarding communications links should Y2K anomalies occur and persist. Again, the Plan was not clear about the procedures to establish alternative communications links or make arrangements for alternative systems.

We discussed our observations regarding the TDC contingency plan with the TDC program office staff. They agreed with our observations and took immediate corrective action to incorporate detailed procedures into the revised Plan.

Conclusion

The TDC program office complied with DoD and Air Force guidance in processing the system Y2K certification. The improvements we suggested were promptly incorporated into TDC procedures and documents; therefore, we have no recommendations.

Appendix A. Audit Process

This is one in a series of reports being issued by the Inspector General, DoD, in accordance with an informal partnership with the Chief Information Officer, DoD, to monitor DoD efforts to address the Y2K computing challenge. For a listing of audit projects addressing this issue, see the Y2K web page on the IGnet at www.ignet.gov.

Scope

We reviewed and assessed the Y2K compliance status of the TDC system. We interviewed the TDC system officials and reviewed the Y2K corrective action plan, the Air Force Y2K certification tracking document, assessment reports, contingency plans, and the certification process to obtain and verify the Y2K compliance status of TDC.

DoD-Wide Corporate Level Government Performance and Results Act Goals. In response to the Government Performance and Results Act, the Department of Defense has established 6 DoD-wide corporate-level performance objectives and 14 goals for meeting the objectives. This report pertains to achievement of the following objective and goal.

> **Objective**: Prepare now for an uncertain future. **Goal**: Pursue a focused modernization effort that maintains U.S. qualitative superiority in key war fighting capabilities. **(DoD-3)**

DoD Functional Area Reform Goals. Most major DoD functional areas have also established performance improvement reform objectives and goals. This report pertains to achievement of the following functional area objectives and goals.

- **Information Technology Management Functional Area. Objective:** Become a mission partner. **Goal:** Serve mission information users as customers. **(ITM-1.2)**

- **Information Technology Management Functional Area. Objective:** Provide services that satisfy customer information needs. **Goal:** Modernize and integrate DoD information infrastructure. **(ITM-2.2)**

- **Information Technology Management Functional Area. Objective:** Provide services that satisfy customer information needs. **Goal:** Upgrade technology base. **(ITM-2.3)**

General Accounting Office High-Risk Area. In its identification of risk areas, the General Accounting Office has specifically designated risk in resolution of the Y2K problem as high. This report provides coverage of that problem and of the overall Information Management and Technology high-risk area.

Methodology

Audit Type, Dates, and Standards. We performed this program audit from March 1999 to April 1999, in accordance with auditing standards issued by the Comptroller General of the United States, as implemented by the Inspector General, DoD. We did not use computer-processed data to perform this audit.

Contacts During the Audit. We visited or contacted individuals and organizations within DoD. Further details are available upon request.

Management Control Program. We did not review the management control program related to the overall audit objective because DoD recognized the Y2K issue as a material management control weakness area in the FY 1998 Annual Statement of Assurance.

Summary of Prior Coverage

The General Accounting Office and the Inspector General, DoD, have conducted multiple reviews related to Y2K issues. General Accounting Office reports can be reviewed on the Internet at http://www.gao.gov. Inspector General, DoD, reports can be reviewed on the Internet at http://www.dodig.osd.mil.

Appendix B. Report Distribution

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House Subcommittee on National Security, Veterans' Affairs, and International Relations, Committee on Government Reform
House Subcommittee on Technology, Committee on Science

Audit Team Members

The Contract Management Directorate, Office of the Assistant Inspector General for Auditing, DoD prepared this report.

Paul J. Granetto
Wayne K. Million
Judith I. Padgett
Wei K. Wu
Terri A. Bellamy